

## CLAIMS

What is claimed is:

1        1.        A method of modeling an environment containing a collection of items, said  
2 method comprising:

3                providing an environmental hierarchy describing a modeled environment;

4                providing a product catalog that includes data describing a plurality of items  
5 that may be utilized to populate the modeled environment;

6                providing a configuration library that includes data describing a spatial  
7 relationship between first and second items among said plurality of items in said  
8 product catalog; and

9                permitting population of said modeled environment by storing, in a database,  
10 data representative of the spatial relationship between said environmental hierarchy  
11 and a collection of items including said first item.

1        2.        The method of Claim 1, wherein said step of providing a product catalog  
2 comprises specifying values for attributes associated with said plurality of items and  
3 storing said values in said product catalog.

1        3.        The method of Claim 2, wherein said step of permitting a user to define at  
2 least one of said attributes.

1        4.        The method of Claim 2, wherein said step of providing a configuration library  
2 comprises selecting said first and second items from said product catalog, specifying  
3 said spatial relationship between said first and second items in which said second  
4 item is within an area defined by said first item, and storing an indication of said  
5 spatial relationship in said configuration library.

1        5.        The method of Claim 1, wherein providing said environmental hierarchy  
2        comprises providing an environmental hierarchy including at least higher and lower  
3        levels each having an associated dataset describing a respective one of first and  
4        second regions, wherein the second region is within the first region.

1        6.        The method of Claim 5, wherein at least one of said higher level and said  
2        lower level represents an area of land.

1        7.        The method of Claim 6, wherein said area of land comprises one of a  
2        construction site, hazardous waste site, and agricultural site.

1        8.        The method of Claim 6, wherein said area of land comprises a jurisdiction of  
2        a governmental entity.

1        9.        The method of Claim 5, wherein at least one of said higher level and said  
2        lower level represents at least a portion of a structure.

1        10.      The method of Claim 9, wherein said structure comprises one of a retail sales  
2        facility and a warehouse facility.

1        11.      The method of Claim 9, wherein said structure comprises one of a  
2        manufacturing facility, a processing facility, and a production facility.

1        12.      The method of Claim 9, wherein said structure comprises a structure under  
2        construction.

1 13. The method of Claim 1, wherein providing a product catalog comprises  
2 storing non-graphical data describing one or more attributes of said plurality of items  
3 and graphical data specifying a graphical representation of at least one of said  
4 plurality of items.

1 14. The method of Claim 13, wherein at least one of said one or more attributes  
2 is time-dependent.

1 15. The method of Claim 1, and further comprising displaying within a display  
2 of a data processing system a graphical representation of said modeled environment,  
3 said graphical representation including at least a first graphical object representing  
4 said first item and at least a second graphical object representing said environmental  
5 hierarchy.

1 16. The method of Claim 15, wherein displaying comprises displaying graphical  
2 object representing fewer than all items in said collection of items populating said  
3 modeled environment.

1 17. The method of Claim 1, wherein permitting population of said modeled  
2 environment comprises allowing entry of at least a portion of said data representative  
3 of the spatial relationship utilizing a scanner.

1 18. The method of Claim 1, wherein providing a product catalog comprises  
2 storing non-graphical data describing one or more attributes of said plurality of items  
3 and graphical data specifying a graphical representation of at least one of said  
4 plurality of items.

1 19. The method of Claim 1, wherein:  
2 said modeled environment comprises a retail environment;  
3 said product catalog includes data describing at least one item for sale; and  
4 said method further comprises permitting removal of said item for sale from  
5 said modeled environment by removing data representative of a spatial relationship  
6 between said at least one item for sale and said environmental hierarchy or another  
7 item in said product catalog.

1 20. The method of Claim 19, and further comprising permitting generation of a  
2 report reflecting correlation of sales of items with subsets of said modeled  
3 environment for which spatial relationships with said items have been defined.

1 21. The method of Claim 1, wherein at least one item in said product catalog  
2 represents a human belonging to an organization, wherein providing a product  
3 catalog includes associating said item representing a human with a calendaring  
4 attribute representing a schedule of the human.

1 22. The method of Claim 1, wherein said modeled environment comprises a data  
2 network and providing a product catalog comprises providing a product catalog  
3 including at least one item representing a dataset.

1 23. The method of Claim 2, wherein at least one attribute associated with a  
2 particular item among said plurality of items comprises a procedure attribute, and an  
3 attribute value of said procedure attribute tracks performance of a procedure  
4 associated with the particular item.

1       24.    The method of Claim 14, and further comprising permitting generation of a  
2       time-dependent view of items from said product catalog populating said modeled  
3       environment.

1       25.    A data processing system, comprising:  
2       a processor;  
3       data storage coupled to the processor;  
4       a modeling tool stored in said data storage and executable by said processor,  
5       said modeling tool including:  
6               means for creating an environmental hierarchy describing a modeled  
7               environment;  
8               means for creating a product catalog for containing data describing a  
9               plurality of items that may be utilized to populate the modeled environment;  
10              means for creating a configuration library for containing data  
11              describing a spatial relationship between first and second items among said  
12              plurality of items in said product catalog; and  
13              means for populating said modeled environment by storing, in a  
14              database, data representative of the spatial relationship between said  
15              environmental hierarchy and a collection of items including said first item.

1       26.    The data processing system of Claim 25, wherein said means for creating a  
2       product catalog comprises means for specifying values for attributes associated with  
3       said plurality of items and storing said values in said product catalog.

1       27.    The data processing system of Claim 26, wherein said means for creating  
2       comprises means for permitting a user to define at least one of said attributes.

1       28.    The data processing system of Claim 26, wherein said means for creating a  
2       configuration library comprises:  
3               means for selecting said first and second items from said product catalog;

4 means for specifying said spatial relationship between said first and second  
5 items in which said second item is within an area defined by said first item; and  
6 means for storing an indication of said spatial relationship in said  
7 configuration library.

1 29. The data processing system of Claim 25, wherein said means for creating said  
2 environmental hierarchy comprises means for creating an environmental hierarchy  
3 including at least higher and lower levels each having an associated dataset  
4 describing a respective one of first and second regions, wherein the second region is  
5 within the first region.

1 30. The data processing system of Claim 29, wherein at least one of said higher  
2 level and said lower level represents an area of land.

1 31. The data processing system of Claim 30, wherein said area of land comprises  
2 one of a construction site, hazardous waste site, and agricultural site.

1 32. The data processing system of Claim 30, wherein said area of land comprises  
2 a jurisdiction of a governmental entity.

1 33. The data processing system of Claim 29, wherein at least one of said higher  
2 level and said lower level represents at least a portion of a structure.

1 34. The data processing system of Claim 33 wherein said structure comprises one  
2 of a retail sales facility and a warehouse facility.

1 35. The data processing system of Claim 33, wherein said structure comprises one  
2 of a manufacturing facility, a processing facility, and a production facility.

1 36. The data processing system of Claim 33, wherein said structure comprises a  
2 structure under construction.

3 37. The data processing system of Claim 25, wherein said means for creating a  
4 product catalog comprises means for storing non-graphical data describing one or  
5 more attributes of said plurality of items and graphical data specifying a graphical  
6 representation of at least one of said plurality of items.

1 38. The data processing system of Claim 37, wherein at least one of said one or  
2 more attributes is time-dependent.

1 39. The data processing system of Claim 25, and further comprising:  
2 a display; and  
3 means for displaying within the display a graphical representation of said  
4 modeled environment, said graphical representation including at least a first graphical  
5 object representing said first item and at least a second graphical object representing  
6 said environmental hierarchy.

1 40. The data processing system of Claim 39, wherein said means for displaying  
2 comprises means for displaying graphical object representing fewer than all items in  
3 said collection of items populating said modeled environment.

1        41.     The data processing system of Claim 25, wherein said means for populating  
2        comprises means for receiving from a scanner and entering into the database at least  
3        a portion of said data representative of the spatial relationship.

1        42.     The data processing system of Claim 25, wherein:  
2                said modeled environment comprises a retail environment;  
3                said product catalog includes data describing at least one item for sale; and  
4                said modeling tool further comprising means for removing said item for sale  
5        from said modeled environment by removing data representative of a spatial  
6        relationship between said at least one item for sale and said environmental hierarchy  
7        or another item in said product catalog.

1        43.     The data processing system of Claim 42, said modeling tool further  
2        comprising means for generating a report reflecting correlation of sales of items with  
3        subsets of said modeled environment for which spatial relationships with said items  
4        have been defined.

1        44.     The data processing system of Claim 25, wherein said means for creating a  
2        product catalog comprises means for creating a product catalog including at least one  
3        human item representing a human belonging to an organization, said human item  
4        having a calendaring attribute representing a schedule of the human.

1        45.     The data processing system of Claim 25, wherein said means for creating a  
2        product catalog comprises means for creating a product catalog representing a data  
3        network, said product catalog including at least one item representing a dataset.



1        46.    The data processing system of Claim 26, wherein at least one attribute  
2        associated with a particular item among said plurality of items comprises a procedure  
3        attribute, and an attribute value of said procedure attribute tracks performance of a  
4        procedure associated with the particular item.

1        47.    The data processing system of Claim 38, said modeling tool further  
2        comprising means for generating of a time-dependent view of items from said  
3        product catalog populating said modeled environment.

1        48.    A program product, comprising:  
2        a computer usable medium; and  
3        a modeling tool encoded within said computer usable medium and executable  
4        by a computer system, said modeling tool including:  
5                means for creating an environmental hierarchy describing a modeled  
6                environment;  
7                means for creating a product catalog that contains data describing a  
8                plurality of items that may be utilized to populate the modeled environment;  
9                means for creating a configuration library that contains data  
10              describing a spatial relationship between first and second items among said  
11              plurality of items in said product catalog; and  
12              means for populating said modeled environment by storing, in a  
13              database, data representative of the spatial relationship between said  
14              environmental hierarchy and a collection of items including said first item.

1        49.    The program product of Claim 48, wherein said means for creating a product  
2        catalog comprises means for specifying values for predefined attributes associated  
3        with said plurality of items and storing said values in said product catalog.

1        50.    The program product of Claim 49, wherein said means for creating a product  
2        catalog comprises means for permitting a user to define at least one of said attributes.

1        51.    The program product of Claim 49, wherein said means for creating a  
2        configuration library comprises:

3                means for selecting said first and second items from said product catalog;

4                means for specifying said spatial relationship between said first and second  
5        items in which said second item is within an area defined by said first item; and

6                means for storing an indication of said spatial relationship in said  
7        configuration library.

1        52.    The program product of Claim 48, wherein said means for creating said  
2        environmental hierarchy comprises means for creating an environmental hierarchy  
3        including at least higher and lower levels each having an associated dataset  
4        describing a respective one of first and second regions, wherein the second region is  
5        within the first region.

1        53.    The program product of Claim 52, wherein at least one of said higher level  
2        and said lower level represents an area of land.

1        54.    The program product of Claim 53, wherein said area of land comprises one  
2        of a construction site, hazardous waste site, and agricultural site.

1        55.    The program product of Claim 53, wherein said area of land comprises a  
2        jurisdiction of a governmental entity.

1        56.    The program product of Claim 52, wherein at least one of said higher level  
2        and said lower level represents at least a portion of a structure.

1 57. The program product of Claim 56, wherein said structure comprises one of  
2 a retail sales facility and a warehouse facility.

1 58. The program product of Claim 56, wherein said structure comprises one of  
2 a manufacturing facility, a processing facility, and a production facility.

1 59. The program product of Claim 56, wherein said structure comprises a  
2 structure under construction.

3 60. The program product of Claim 48, wherein said means for creating a product  
4 catalog comprises means for storing non-graphical data describing one or more  
5 attributes of said plurality of items and graphical data specifying a graphical  
6 representation of at least one of said plurality of items.

1 61. The program product of Claim 60, wherein at least one of said one or more  
2 attributes is time-dependent.

1 62. The program product of Claim 48, and further comprising means for  
2 displaying within a display of a computer system a graphical representation of said  
3 modeled environment, said graphical representation including at least a first graphical  
4 object representing said first item and at least a second graphical object representing  
5 said environmental hierarchy.

1 63. The program product of Claim 62, wherein said means for displaying  
2 comprises means for displaying graphical object representing fewer than all items in  
3 said collection of items populating said modeled environment.

1 64. The program product of Claim 48, wherein said means for populating  
2 comprises means for receiving from a scanner and entering into the database at least  
3 a portion of said data representative of the spatial relationship.

1 65. The program product of Claim 48, wherein:  
2 said modeled environment comprises a retail environment;  
3 said product catalog includes data describing at least one item for sale; and  
4 said modeling tool further comprising means for removing said item for sale  
5 from said modeled environment by removing data representative of a spatial  
6 relationship between said at least one item for sale and said environmental hierarchy  
7 or another item in said product catalog.

1 66. The program product of Claim 55, said modeling tool further comprising  
2 means for generating a report reflecting correlation of sales of items with subsets of  
3 said modeled environment for which spatial relationships with said items have been  
4 defined.

1 67. The program product of Claim 48, wherein said means for creating a product  
2 catalog comprises means for creating a product catalog including at least one human  
3 item representing a human belonging to an organization, said human item having a  
4 calendaring attribute representing a schedule of the human.

1 68. The program product of Claim 48, wherein said means for creating a product  
2 catalog comprises means for creating a product catalog representing a data network,  
3 said product catalog including at least one item representing a dataset.

1        69.     The program product of Claim 49, wherein at least one attribute associated  
2        with a particular item among said plurality of items comprises a procedure attribute,  
3        and an attribute value of said procedure attribute tracks performance of a procedure  
4        associated with the particular item.

1        70.     The program product of Claim 61, said modeling tool further comprising  
2        means for generating of a time-dependent view of items from said product catalog  
3        populating said modeled environment.